

FIG 1

200

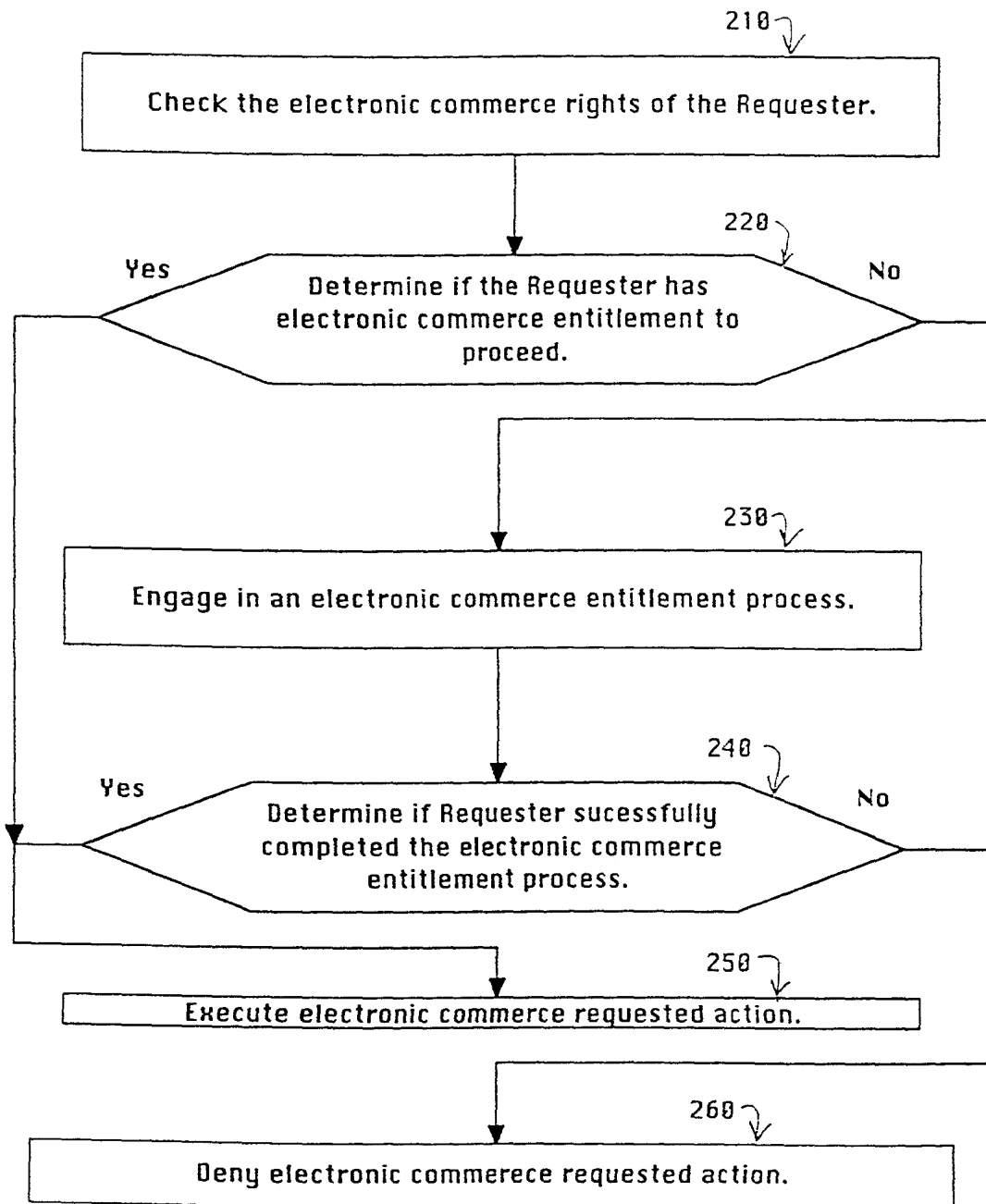


FIG 2

300

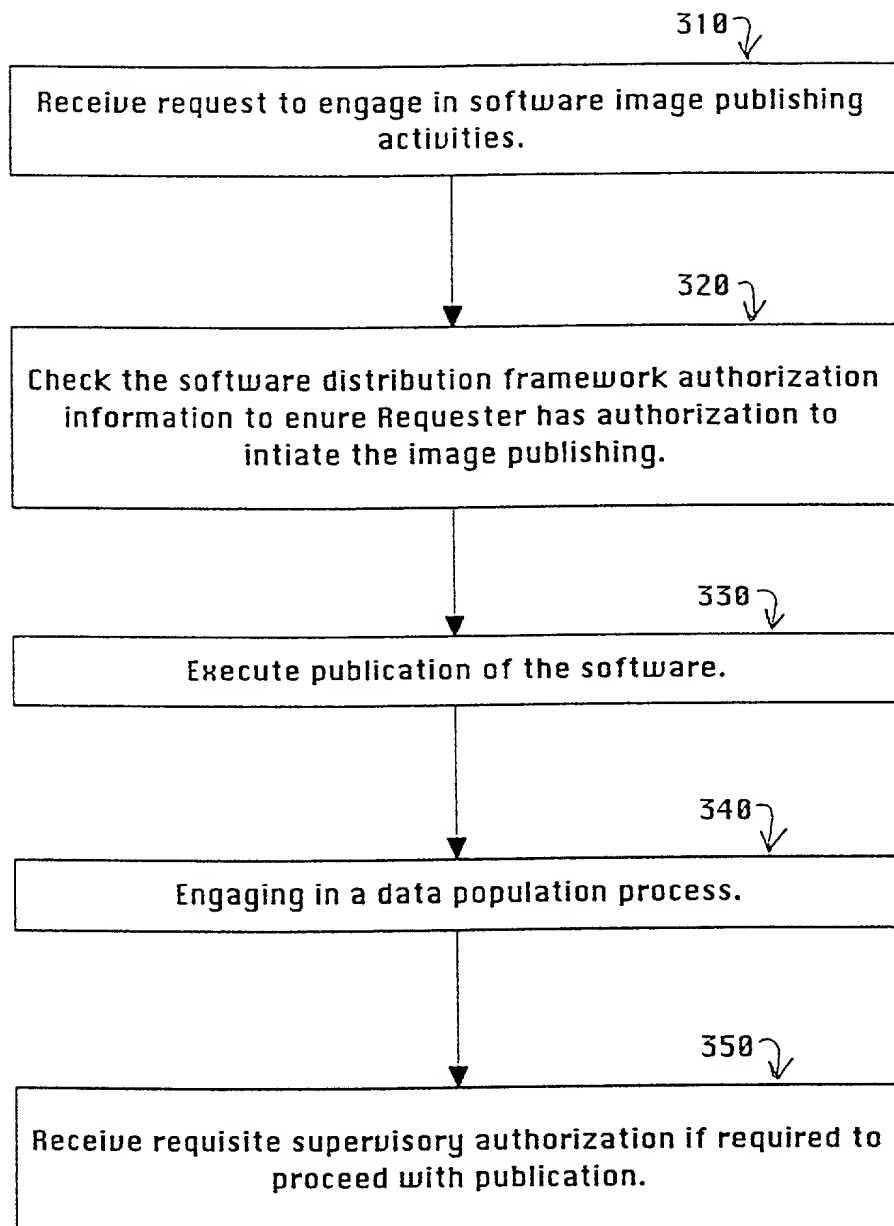


FIG 3

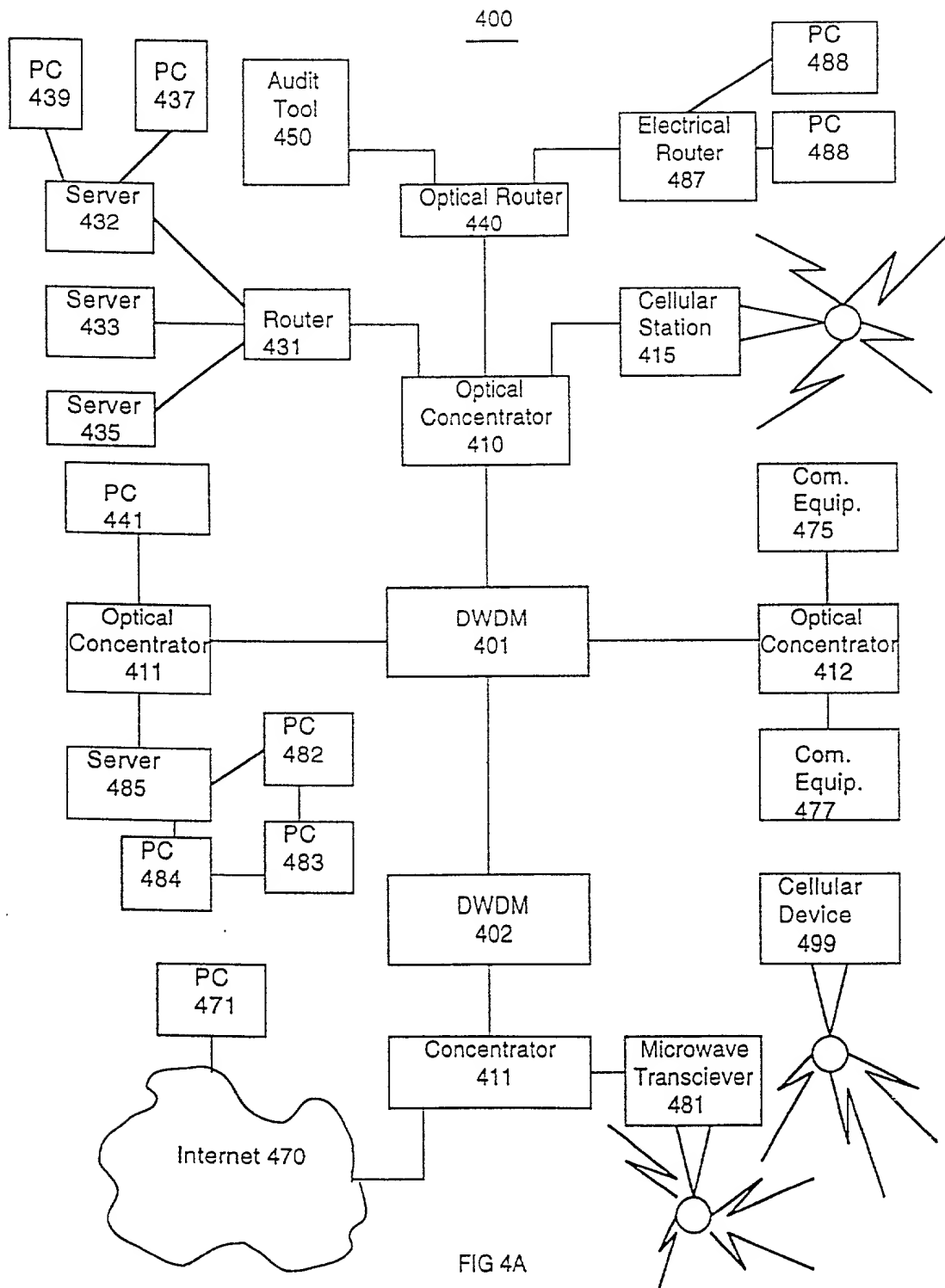


FIG 4A

450

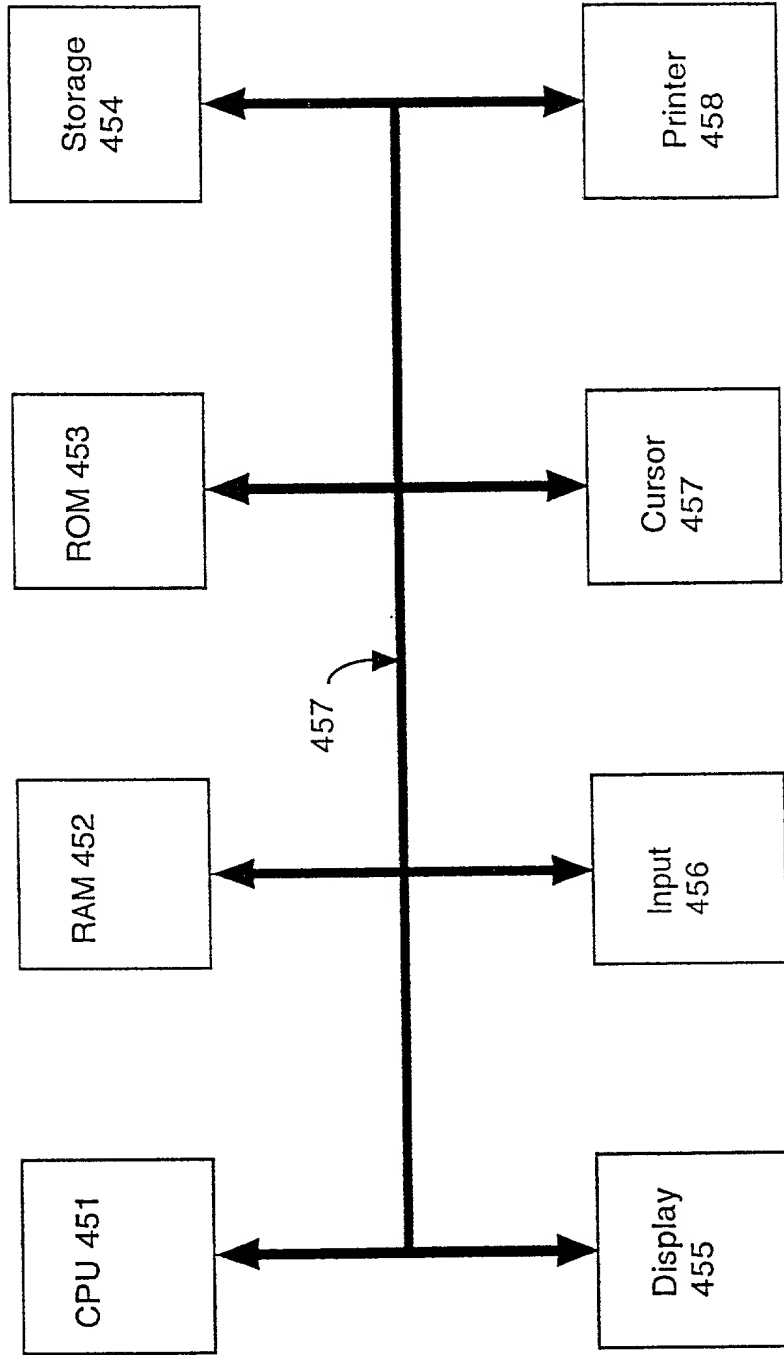
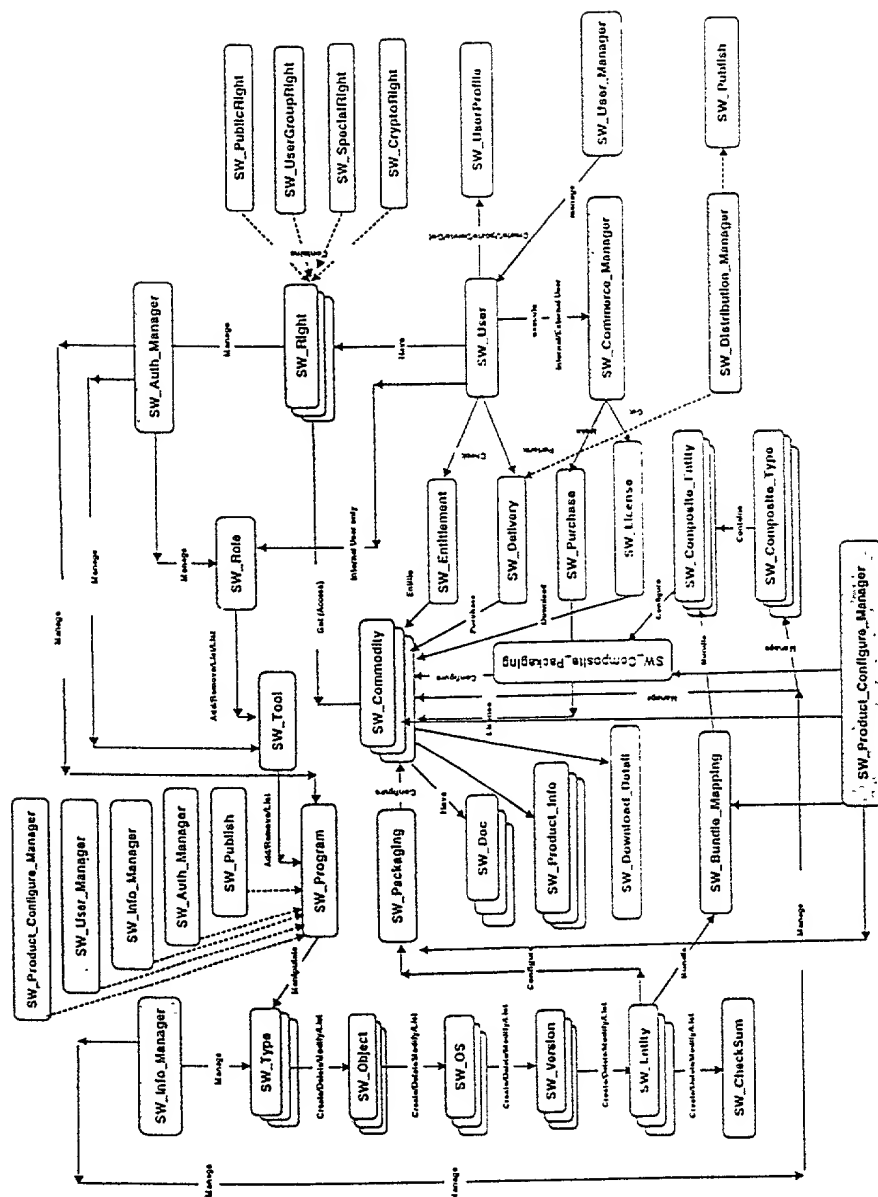


FIG 4B



Object-Oriented Software Architecture for Cisco XML-Based Software Distribution Framework

55

600

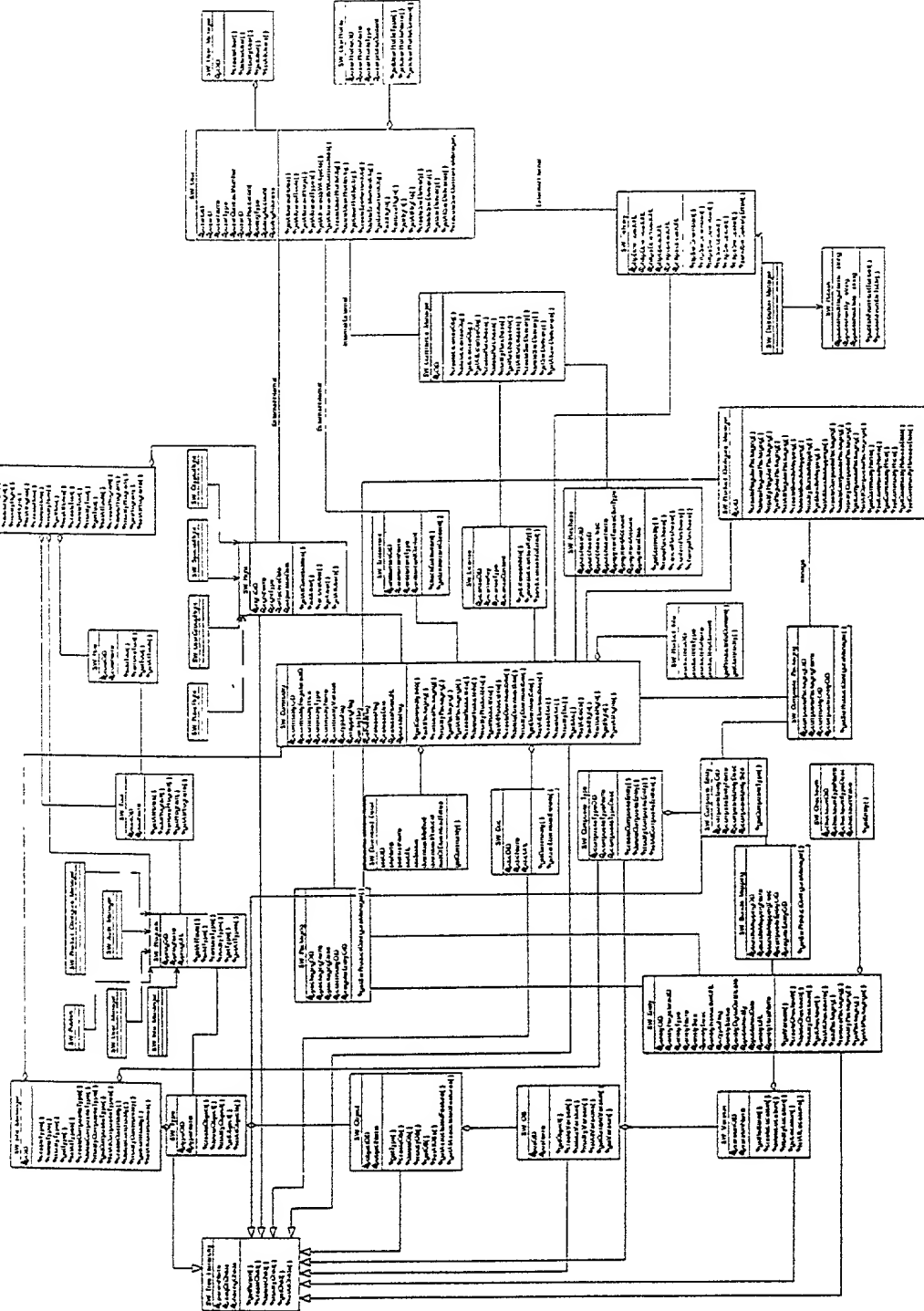


Fig 6

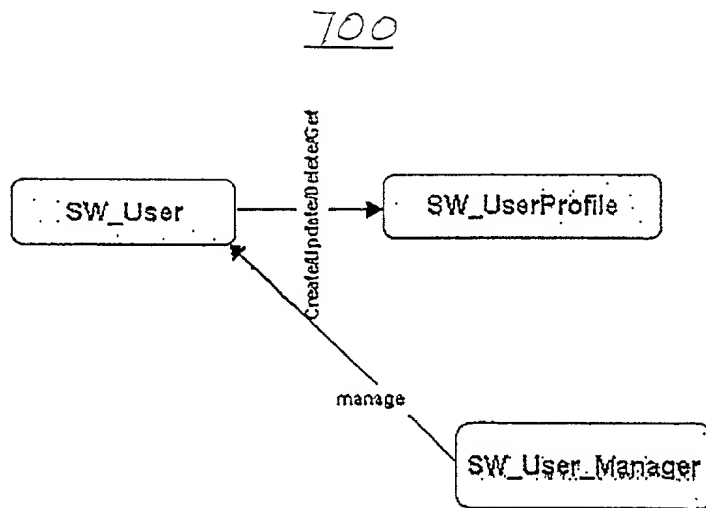


FIG 7

300

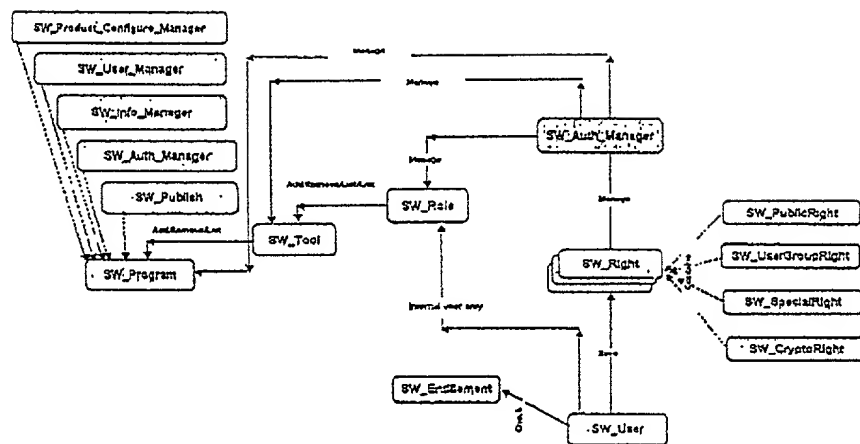


FIG 8

900

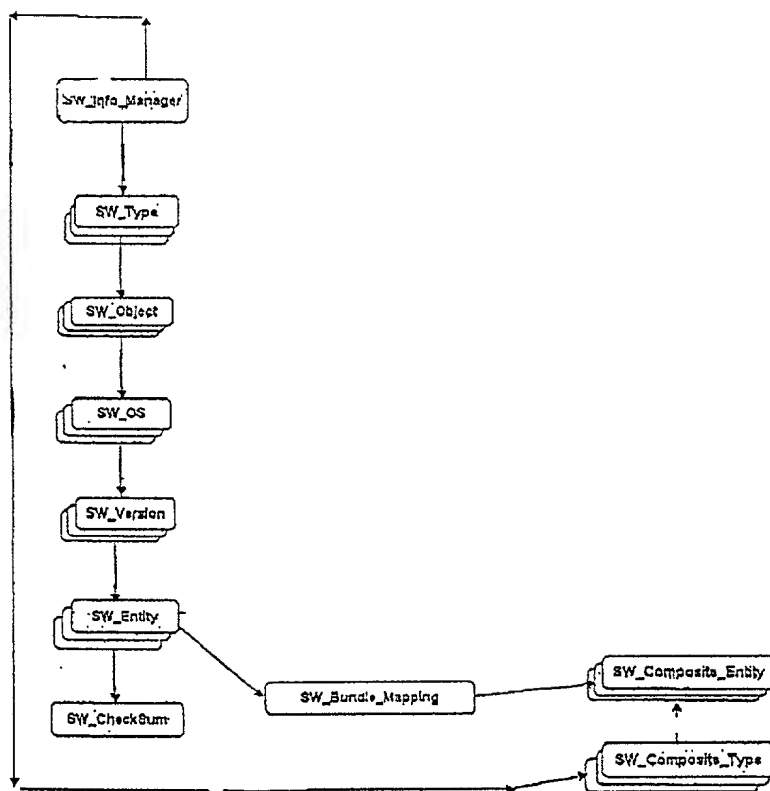


Fig 9

1000

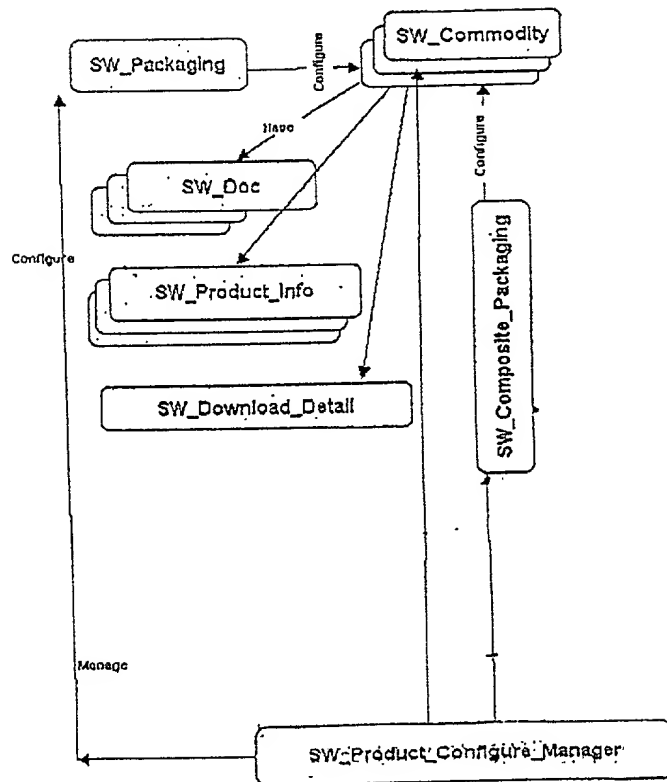


FIG 10

1100

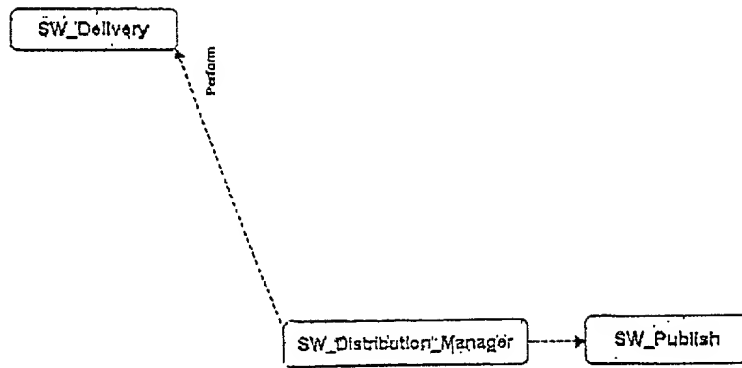


Fig 11

1200

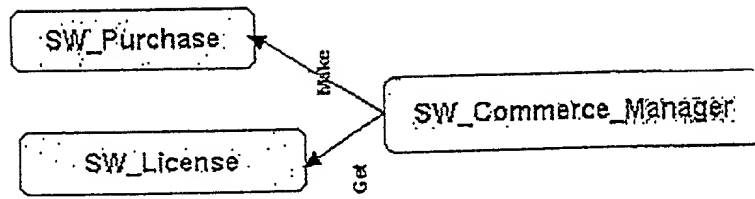


FIG 12

1300

ATTRIBUTE NAME	DEFINITION (AND SAMPLE INPUT DATA)	NOT NULL ?	DATA TYPE
XX_OBJECT_ID	Unique object identifier of software XX, for framework internal use.	Yes	VARCHAR2(50)
XX_NAME	Software XX name (e.g., if XX is version entry is 1.4, 2.3, 4.0, etc.; if XX is OS then entry is Unix, Win95, Linux, etc)	Yes	VARCHAR2(50)
HAS_PARENT_XX	Whether this XX has parent type or not (e.g., "Y" or "N").	Yes	VARCHAR2(1)
PARENT_XX_ID	Unique object identifier of parent XX, for framework internal use.	Yes	VARCHAR2(50)
NUM_OF_CHILD_XX	Number of child XX belonging to this XX (e.g., default value is zero)	Yes	NUMBER
YY_OBJECT_ID	Unique object identifier of software YY containing this XX, for framework internal use.	Yes	VARCHAR2(50)
NUM_OF_YY	Number of software YY objects belonging to this XX (e.g., default value is zero)	Yes	NUMBER
CREATE_BY	Person creating this software XX (e.g., jquin)	Yes	VARCHAR2(30)
CREATE_DATE	Date when this software XX is created (e.g., 14-DEC-2000)	Yes	DATE
MODIFY_BY	Person modifying this software XX (e.g., jquin)	No	VARCHAR2(30)
MODIFY_DATE	Date when this software XX is modified (e.g., 14-DEC-2000)	NO	DATE
PRIMARY KEY	XX_OBJECT_ID		
FOREIGN KEY	YY_OBJECT_ID references SWDF_SW_YY(YY_OBJECT_ID)		

FIG. 13A

ATTRIBUTE NAME	DEFINITION & SAMPLE INPUT DATA	NOT NULL ?	DATA TYPE
OS_OBJECT_ID	Unique object identifier of software operating system for framework internal use only.	YES	VARCHAR2(50)
OS_NAME	Software operating system name (i.e. Unix, Win95, Win98, Win2000, Window NT, Linux etc).	YES	VARCHAR2(50)
HAS_PARENT_OS	Whether this OS object has parent operating system or not (i.e. "Y" or "N").	YES	VARCHAR2(1)
PARENT_OS_ID	Unique object identifier for the parent OS of this OS object for framework internal use only.	YES	VARCHAR2(50)
NUM_OF_CHILD_OS_OBJECTS	Number of child OS objects of this software OS object (i.e. default value is zero).	YES	NUMBER
SW_OBJECT_ID	Unique object identifier for the software object containing this software OS object for framework internal use only.	YES	VARCHAR2(50)
NUM_OF_VERSION_OBJECTS	Number of software version objects belonging to this software OS object (i.e. default value is zero).	YES	NUMBER
CREATE_BY	Person creating this software OS object (i.e. jqin, tblum).	YES	VARCHAR2(30)
CREATE_DATE	Date when this software OS object is created (i.e. 14-DEC-2000).	YES	DATE
MODIFY_BY	Person modifying this software OS object (i.e. jqin, mmichell).	NO	VARCHAR2(30)
MODIFY_DATE	Date when this software OS object is created (i.e. 14-DEC-2000).	NO	DATE
PRIMARY KEY	OS_OBJECT_ID		
FOREIGN KEY	SW_OBJECT_ID References SWDF_SW_Object (SW_OBJECT_ID)		

Fig 13B

ATTRIBUTE NAME	DEFINITION & SAMPLE INPUT DATA	NOT NULL ?	DATA TYPE
VERSION_OBJECT_ID	Unique object identifier of software version for framework internal use only.	YES	VARCHAR2(50)
VERSION_NUMBER	Software version number (i.e. 10.0, 11.3, 9.21).	YES	VARCHAR2(50)
HAS_PARENT_VERSION	Whether this version has parent version or not (i.e. "Y" or "N").	YES	VARCHAR2(1)
PARENT_VERSION_ID	Unique object identifier for the parent version of this version for framework internal use only.	YES	VARCHAR2(50)
NUM_OF_CHILD_VERSIONS	Number of child version objects of this software version object (i.e. default value is zero).	YES	NUMBER
OS_OBJECT_ID	Unique object identifier for the software OS object containing this software version object for framework internal use only.	YES	VARCHAR2(50)
NUM_OF_ENTITY_OBJECTS	Number of software entity objects belonging to this software version object (i.e. default value is zero).	YES	NUMBER
CREATE_BY	Person creating this software version (i.e. jqin, tchen).	YES	VARCHAR2(30)
CREATE_DATE	Date when this software version is created (i.e. 14-DEC-2000).	YES	DATE
MODIFY_BY	Person modifying this software version (i.e. jqin, twany).	NO	VARCHAR2(30)
MODIFY_DATE	Date when this software version is created (i.e. 16-DEC-2000).	NO	DATE
PRIMARY KEY	VERSION_OBJECT_ID		
FOREIGN KEY	OS_OBJECT_ID References SWDF_SW_OS (OS_OBJECT_ID)		

FIG 13C

ATTRIBUTE NAME	DEFINITION & SAMPLE INPUT DATA	NOT NULL ?	DATA TYPE
ENTITY_OBJECT_ID	Unique object identifier of software entity for framework internal use only.	YES	VARCHAR2(50)
ENTITY_NAME	Software entity name (i.e. igs-bpx-1.100-12.bin, igs-d-1.100-12.bin).	YES	VARCHAR2(50)
ENTITY_SIZE	Software entity size (i.e. 3638 KB, 2935KB).	YES	VARCHAR2(30)
ENTITY_DESC	Software entity description (i.e. CISCO IOS Software).	YES	VARCHAR2(200)
ENTITY_STATUS	Software entity status (i.e. ED, LD, GD).	YES	VARCHAR2(30)
ENTITY_CHECKSUM_TYPE	Software entity checksum type (i.e. MD5, BSD).	NO	VARCHAR(30)
ENTITY_CHECKSUM	Software entity checksum value (i.e. d41d8cd98f00b204e9800998ecf3427e).	NO	VARCHAR2(50)
ENTITY_DIGITAL_CERTIFICATE	Software entity digital certificate (i.e. N/A)	NO	VARCHAR2(100)
PUBLISHED_BY	Person publishing this software entity (i.e. jqin, sherman).	YES	VARCHAR2(30)
PUBLISHED_DATE	Date when this software entity is published (i.e. 14-DEC-2000)	YES	DATE
ENTITY_URL	Software entity URL (i.e. ftp://ftp.cisco.com/cisco/ios/10.0/10.0.12/2500/).	YES	VARCHAR2(200)
ENTITY_HOST_NAME	Software entity host name (i.e. ftp.cisco.com).	YES	VARCHAR2(50)
HAS_PARENT_ENTITY	Whether this entity has parent location or not (i.e. "Y" or "N").	YES	VARCHAR2(1)
PARENT_ENTITY_ID	Unique object identifier for the parent entity of this entity for framework internal use only.	YES	VARCHAR2(50)
NUM_OF_CHILD_ENTITIES	Number of child entity objects of this software entity object (i.e. default value is zero).	YES	NUMBER
VERSION_OBJECT_ID	Unique object identifier for the software version object containing this software entity object for framework internal use only.	YES	VARCHAR2(50)
CREATE_BY	Person creating this software entity (i.e. jdole, tbium).	YES	VARCHAR2(30)
CREATE_DATE	Date when this software entity is created (i.e. 14-DEC-2000).	YES	DATE
MODIFY_BY	Person modifying this software entity (i.e. jqin, sherman)	NO	VARCHAR2(30)
MODIFY_DATE	Date when this software entity is created (i.e. 14-DEC-2000).	NO	DATE
ENTITY_INSTRUCTIONS	Software entity installation instructions.	NO	VARCHAR2(2000)
PRIMARY KEY	ENTITY_OBJECT_ID		
FOREIGN KEY	VERSION_OBJECT_ID References SWDF_SW_VERSION (VERSION_OBJECT_ID)		

Fig 13D

1400

ATTRIBUTE NAME	DEFINITION (AND SAMPLE INPUT DATA)	NOT NULL ?	DATA TYPE
AA_OBJECT_ID	Unique object identifier of software XX, for framework internal use.	Yes	VARCHAR2(50)
BB_OBJECT_ID	Software XX name (e.g., if XX is version entry is 1.4, 2.3, 4.0, etc.; if XX is OS then entry is Unix, Win95, Win98, Linux, etc)	Yes	VARCHAR2(50)
CREATE_BY	Person creating this link (e.g., jgin)	Yes	VARCHAR2(30)
CREATE_DATE	Date when this link is created (e.g., 14-DEC-2000)	Yes	DATE
PRIMARY KEY	AA_OBJECT_ID and BB_OBJECT_ID		
FOREIGN KEY	AA_OBJECT_ID references SWDF_SW_AA(AA_OBJECT_ID)		
	BB_OBJECT_ID references SWDF_SW_BB(BB_OBJECT_ID)		

FIG. 14A

ATTRIBUTE NAME	DEFINITION & SAMPLE INPUT DATA	NOT NULL	DATA TYPE
PROG_OBJECT_ID	Unique object identifier of software program for framework internal use only.	YES	VARCHAR2(50)
TYPE_OBJECT_ID	Unique object identifier of software type for framework internal use only.	YES	VARCHAR2(50)
CREATE_BY	Person creating this link (i.e. jqin, jdole).	YES	VARCHAR2(30)
CREATE_DATE	Date when this software link is created (i.e. 14-DEC-2000).	YES	DATE
PRIMARY KEY	PROG_OBJECT_ID and TYPE_OBJECT_ID		
FOREIGN KEY	PROG_OBJECT_ID References SWDF_SW_PROGRAM (PROG_OBJECT_ID) TYPE_OBJECT_ID References SWDF_SW_TYPE (TYPE_OBJECT_ID)		

Fig 14B

ATTRIBUTE NAME	DEFINITION & SAMPLE INPUT DATA	NOT NULL ?	DATA TYPE
USER_OBJECT_ID	Unique object identifier of software user for framework internal use only.	YES	VARCHAR2(50)
ROLE_OBJECT_ID	Unique object identifier of software role for framework internal use only.	YES	VARCHAR2(50)
CREATE_BY	Person creating this link (i.e. jqin, jdole).	YES	VARCHAR2(30)
CREATE_DATE	Date when this software link is created (i.e. 14-DEC-2000).	YES	DATE
PRIMARY KEY	USER_OBJECT_ID and ROLE_OBJECT_ID		
FOREIGN KEY	USER_OBJECT_ID References SWDF_SW_USER (USER_OBJECT_ID) ROLE_OBJECT_ID References SWDF_SW_ROLE (ROLE_OBJECT_ID)		

Fig 14C